

REMARKS

Claims 1-19 were previously cancelled. Claims 30-49 were previously withdrawn. Claims 137-141 are allowed.

As of this amendment, claims 52, 53, 54, 72, 81, 117, 119, and 127 are cancelled. Claims 20, 22, 50, 65, 71, 87, 88, 89, 116, and 137 are amended. New claim 142 is added. No new subject matter is present. Claims 20-29, 50-51, 55-71, 73-80, 82-116, 118, 120-127, and 142 remain in the case for consideration. Allowance of these claims is respectfully requested in light of the following remarks.

Claim Rejections – 35 USC § 102

Claims 55-57, 59, 62-64 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,014,113 to Casto et al (“Casto”). The applicants disagree.

In the last sentence of the Advisory Action mailed on 9 June 2003, the Examiner stated that “[s]ince claim 55 does not recite the inner leads are totally having a constant second thickness ... Applicant’s claims 55 ... do not distinguish over Casto’s reference” (emphasis in original). Subsequently, as suggested by the Examiner, the applicants amended claim 55 to recite “inner leads totally having a constant second thickness greater than the first thickness,” where the recited first thickness is the thickness of the chip attaching part. Claim 55 also recites that the inner leads are encapsulated by the encapsulant.

As was previously suggested by the Examiner and as stated in claim 55, Casto’s inner leads (those encapsulated by the encapsulant) do not *totally have a constant second thickness* that is greater than the first thickness (see Casto FIG. 1, where inside the encapsulant there is a clear “step” between first frame layer 18 and second frame layer 28; emphasis added). Consequently, Casto does not anticipate claim 55 because it fails to teach every feature of the claim (MPEP 2131).

Claims 56-57, 59, and 62-64 inherently contain the features of claim 55. Consequently, Casto also fails to anticipate claims 56-57, 59, and 62-64 because it does not teach every feature inherent to those claims (MPEP 2131).

Claim 56 recites that the inner leads are formed of a single layer. To the contrary, Casto teaches a *multiple-layer* lead frame 16 (FIG. 1; column 3, lines 33-35; emphasis added) having a first frame layer 18 (FIG. 1; column 3, lines 34-35) and at least a second frame layer 28 bonded to the first frame layer 18 (FIG. 1; column 3, lines 40-41). Thus, Casto fails to anticipate claim 56 for this additional reason (MPEP 2131).

Claim Rejections – 35 USC § 103

Claims 20-24, 28, 50-54, 58, 71-81, 86-96, 100, 102-110, 114, 116-127, 132-134, 136 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP-2000-124396 to Nokita (“Nokita”) in view of Casto. The applicants disagree.

Claim 20 is amended to recite, *inter alia*, that the peripheral part protrudes toward the second semiconductor chip and ***away from the first semiconductor chip*** (emphasis added). This amendment is fully supported by the application as filed at, e.g., FIG. 10. The Casto/Nokita combination fails to teach this feature. Consequently, the Casto/Nokita combination fails to establish a *prima facie* case of obviousness for claim 20 (MPEP 2143.03).

Claims 21, 23, 24, and 28 depend from claim 20. Any claim depending from a nonobvious independent claim is also nonobvious (MPEP 2143.03).

Claim 22 is amended to recite, *inter alia*, that the peripheral part protrudes toward only one of the first and second semiconductor chips, and that the bonding wires connected to the one of the first and second semiconductor chips are shorter than the bonding wires connected to the other semiconductor chip. These amendments are fully supported by the application as filed at, e.g., FIGS. 8 and 10. The Casto/Nokita combination fails to teach or suggest this feature. Consequently, the Casto/Nokita combination fails to establish a *prima facie* case of obviousness for claim 22 (MPEP 2143.03).

Claim 50 recites, *inter alia*, that the die pad includes a chip attaching part and a peripheral part, that the peripheral part surrounds the chip attaching part, that the chip attaching part has a first thickness, and that the inner lead has a second thickness that is greater than the first thickness. Furthermore, claim 50 is amended to recite that the chip attaching part and the peripheral part have the same thickness. This amendment is fully supported by cancelled claim 119. Thus, the chip attaching part and the peripheral part must have a first thickness that is less than the second thickness of the inner lead.

To the contrary, Nokita shows that the die pad (1) has a chip attaching part and a peripheral part surrounding the chip attaching part that do not have the same thickness. Additionally, the thickness of Nokita’s peripheral part is not less than the thickness of the inner lead.

Claim 50 is also amended to recite that each of the plurality of ***single-layer*** leads includes an inner lead that is bonded to the bonding wire and encapsulated by the package body and an outer lead integral to the inner lead and extending from the package body (emphasis added). This amendment is fully supported by the original application at, e.g., FIG. 6. The only portion of

Casto's device that is bonded to the bonding wire 34 is the first frame layer 18 (FIG. 1; column 3, line 33). Claim 50 also requires that the outer lead be integral to the inner lead. Thus, only Casto's first frame layer 18 qualifies as a "lead" as recited in claim 50.

Contrary to the other features of claim 50 recited above, the thickness of Casto's die pad 40 is not less than the thickness of Casto's first frame layer 18.

Consequently, the Nokita/Casto combination fails to create a *prima facie* case of obviousness for claim 50 because the combination fails to teach or suggest every feature of claim 50 (MPEP 2143.03).

Claims 51, 118, 120-126, and 128-132 depend from independent claim 50. Any claim depending from a nonobvious independent claim is also nonobvious (MPEP 2143.03).

Claims 52 and 54 are cancelled.

Claim 58 depends from claim 55. Claim 55 is not rejected under 35 USC 103. Any claim that depends from a nonobvious independent claim is also nonobvious (MPEP 2143.03).

Claim 71 is amended to recite, *inter alia*, single-layer leads. This amendment is fully supported by, e.g., cancelled claim 72 and FIG 3a. Claim 71 also recites that the chip attaching part and the peripheral part have a first thickness that is less than a second thickness, the second thickness being the thickness of the inner leads. Neither Casto nor Nokita teach or suggest these features. Consequently, the Casto/Nokita combination fails to establish a *prima facie* case of obviousness with respect to claim 71 (MPEP 2143.03).

Claims 72 and 81 are cancelled.

Claims 73-80 and 86 depend from claim 71. Any claim that depends from a nonobvious independent claim is also nonobvious (MPEP 2143.03).

Claim 87 is amended to recite, *inter alia*, first and second semiconductor chips bonded to first and second surfaces of the chip attaching part, respectively, and that the peripheral part protrudes towards the first semiconductor chip and away from the second semiconductor chip. Support for this amendment is found in the original application at, e.g., FIGS. 8 and 10. Neither Casto nor Nokita teach or suggest a peripheral part that protrudes toward a first semiconductor chip and away from a second semiconductor chip. Consequently, the Casto/Nokita combination fails to establish *prima facie* obviousness for amended claim 87 (MPEP 2143.03).

Claims 88 and 89 are amended for consistency with claim 87.

Claims 88-115 depend from independent claim 87. Any claim that depends from a nonobvious independent claim is also nonobvious (MPEP 2143.03).

Claim 116 is amended to recite, *inter alia*, first and second semiconductor chips mounted to first and second surfaces of the chip attaching part, respectively, and that the peripheral part protrudes towards the first semiconductor chip and away from the second semiconductor chip. Support for this amendment is found in the original application at, e.g., FIGS. 8 and 10. Neither Casto nor Nokita teach or suggest a peripheral part that protrudes toward the first semiconductor chip and away from the second semiconductor chip. Consequently, the Casto/Nokita combination fails to establish *prima facie* obviousness for amended claim 116 (MPEP 2143.03).

Claim 117 is cancelled.

Claims 135 and 136 depend from claim 116. Any claim that depends from a nonobvious independent claim is also nonobvious (MPEP 2143.03).

Claim 65 is rejected under 35 U.S.C. 103(a) as being unpatentable over Casto in view of Nokita. The applicants disagree. Claim 65 depends from independent claim 55. Claim 55 is not rejected under 35 USC 103 and was shown to be unanticipated with respect to Casto. Any claim that depends from a non-obvious independent claim is also nonobvious (MPEP 2143.03). Claim 65 was amended for consistency with claim 55.

Claims 66-68, 133 are rejected under 35 U.S.C. 103(a) as being unpatentable over Casto in view of U.S. Patent Application Publication 2002/0113305 to Huang (“Huang”). The applicants disagree.

Claims 66-68 depend from nonobvious independent claim 55. Claim 133 depends from nonobvious independent claim 87. Any claim that depends from a nonobvious independent claim is also nonobvious (MPEP 2143.03).

Claims 69, 85, 101, 115, 131 are rejected under 35 U.S.C. 103(a) as being unpatentable over Casto in view of U.S. Pat. No. 6,177,718 to Kozono (“Kozono”). The applicants disagree.

Claim 69 depends from nonobvious independent claim 55. Claim 85 depends from nonobvious independent claim 71. Claims 101 and 115 depend from nonobvious independent claim 87. Claim 131 depends from nonobvious independent claim 50. Any claim that depends from a nonobvious independent claim is also nonobvious (MPEP 2143.03).

Allowable Subject Matter

Claims 137-141 are allowed over the prior art of record.

New Claim 142

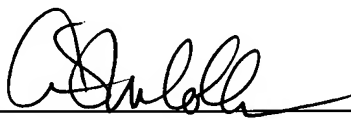
Allowable claim 137 recites the feature of "the peripheral part only protrudes downward." Since "downward" is a relative term, new claim 142 is added. New claim 142 is based upon claim 137 and is fully supported by the original application at, e.g., FIG. 16. Unlike claim 137, claim 142 recites the feature of "the peripheral part only protruding away from the semiconductor chip." The applicants submit that no combination of the prior art of record yields the device with the features recited in claim 137.

Conclusion

For the foregoing reasons, reconsideration and allowance of claims 20-29, 50-51, 55-71, 73-80, 82-116, 118, 120-127, and 142 of the application as amended is requested. Please telephone the undersigned at (503) 222-3613 if it appears that an interview would be helpful in advancing the case.

Respectfully submitted,

MARGER JOHNSON & McCOLLOM, P.C.



Alan T. McCollom
Reg. No. 28,881

MARGER JOHNSON & McCOLLOM, P.C.
1030 SW Morrison Street
Portland, OR 97205
503-222-3613
Customer No. 20575

I HEREBY CERTIFY THAT
THIS CORRESPONDENCE IS
BEING DEPOSITED WITH THE
UNITED STATES POSTAL
SERVICE AS FIRST CLASS
MAIL IN AN ENVELOPE
ADDRESSED TO:

☐ COMMISSIONER OF PATENTS
AND TRADEMARKS WASHINGTON
D.C. 20231

☒ MAIL STOP
COMMISSIONER FOR PATENTS
BOX 1450
ALEXANDRIA, VA 22313-1450

☐ BOX
COMMISSIONER
FOR TRADEMARKS 2800 CRYSTAL
DRIVE ARLINGTON, VA 22202-3513

ON: 4-5-04
